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ABSTRACT

Assessed were children's uses of effort and intentionality cues in judgments of morality and disposition. Children of 4, 7, and 10 years were presented with one prediction and four judgment stories. Judgment stories factorially combined two levels of intentionality and two levels of effort. These stories described different actors and the same negative outcome. A fifth story described the actor in a different situation for the purpose of assessing the children's predictions. Children rated the morality of the actor's behavior and predicted whether the actor would display similar behavior in a different situation. Children also rated the actor's disposition. Although children at each age level used intentionality cues when making judgments of morality and disposition, preschool children rated less culpable actors more negatively than did elementary school children. As expected, predictions were influenced by intentionality for elementary school students only. Preschoolers displayed little use of effort cues when rating accidental and intentional actors. Elementary school children's ratings differed significantly due to effort cues for intentional actors only. These findings suggest that by the age of 7 years, children find that effort cues provide important information about an actor's motives and goals. (RH)

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CHILDREN'S USE OF EFFORT AND INTENTIONALITY IN SOCIAL JUDGMENTS OF OTHERS

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Abstract

In the naive analysis of actions, the cognition of effort is an important, yet under-researched dimension. This study assessed children's use of both effort and intentionality cues in judgments of morality and disposition. Children at ages 4, 7, and 10 were presented with a set of 4 judgments stories which described different actors and the same negative outcome event. A fifth story described the actor from the judgment story in a different situation in order to assess behavioral predictions. Children rated the morality of the actor's behavior then predicted whether or not the actor would display similar behavior in a different situation. Finally, children rated the actor's disposition. Although children at each age level evidenced use of intentionality cues when making their judgments of morality and disposition, preschoolers rated less culpable actors more negatively than did elementary school children. As expected, predictions were influenced by intentionality for elementary school children only. Preschoolers evidenced little attention to, and use of effort cues when rating both accidental and intentional actors. In contrast, elementary school children's ratings differed significantly due to effort cues for intentional actors only. These findings suggest that by age 7, children attend to, and treat effort cues as important information about an actor's motives and goals. These findings have important implications for children's increasing flexibility when considering multiple cues in social judgment processes.

INTRODUCTION

Several factors are thought to influence children's social judgments of others and their behavior. Among these factors are children's ability to consider the relevance of multiple evaluative criteria and also their understanding of others. Children's awareness of evaluative criteria and their ability to incorporate given information when evaluating others has been investigated extensively (see Karniol, 1978 and Keasey, 1978 for a review of related research). Also, several theories/models have attempted to describe the processes underlying perceptions and inferences of others (e.g., Heider, 1958; Jones & Davis,1965) and related research with children has identified major developmental trends (Peevers & Secord,1973; Rholes & Ruble, 1984; Rotenberg, 1980).

Although intentionality has been acknowledged to be an influential evaluative criteria in such judgments, it is surprising that the literature has yet to clearly conceptualize and empirically investigate the role of effort within this context. Thus, the present study was undertaken to investigate children's usage of both effort and intentionality cues in moral and dispositional judgments of others.

The Cognition of Effort in Social Judgments

The concept of intentionality in children's judgments of morality and disposition has been investigated in the recent past, but other salient features of actions which may influence perceptions of others and behavior have received little attention. For instance, the role of effort (e.g., how hard a person tries to achieve an end goal) as manifested in the behavior of others has not been investigated within this context. It is important that children consider the efforts of others when observing behavior and subsequent outcomes since the extent to which a person tries to do something may provide information of relevance for cognizing various aspects of an action-outcome sequence. For example, information about the amount of effort invested in causing an outcome may influence judgments and inferences regarding both the actor's intentions and level of motivation and also the intentional nature of both an action and an outcome. Therefore, it is conceivable that judgments, inferences, and perceptions of others may differ significantly as a function of the amount of effort invested in accomplishing a goal. For this reason, the cognition of effort in social judgments of others deserves serious conceptual consideration and empirical investigation. The following discussion outlines a few ways in which effort may influence perceptions of others and their actions.

Conceptually, there are at least three relations to consider regarding the possible influence of effort upon social judgments of behavior and others. First,

one might consider the effect of effort upon both attributions of intentionality and inferences of an actor's intentions. More specifically, knowledge of the magnitude of effort (e.g., several attempts versus only one attempt to cause the outcome), in addition to, whether the effort was directed towards the actual outcome, may influence inferences of the intentional nature of the action/outcome and/or whether the actor intended to cause the observable outcome. For example, the observation that an actor has exerted himself in the direction of an observable outcome may imply that it was the intention of the actor to produce the outcome. In other words, perhaps the outcome would be perceived to be the actor's desired or intended end goal. Furthermore, the action(s) that produced the outcome should be perceived to be intentional as well. In other words, one could conclude that actions likely to produce the desired outcome were performed by the actor with the intention of causing the outcome. Surprisingly, the developmental literature has yet to address these issues conceptually or empirically.

Second, information about effort may influence inferences regarding the extent to which an actor wanted (intended) to produce a particular outcome. For example, the observation that an actor has tried very hard to produce an outcome may imply that the actor really wanted to cause the outcome. In turn, the outcome itself should be perceived to be particularly desirable to the actor. Within this context, effort as a salient feature of actions has been acknowledged. For example, Fritz Heider's classic book, *The Psychology of Interpersonal Relations* (1958), discusses the influence of effort upon perceptions of others and behavior within a "common sense psychology" (also termed "naive analysis of actions") conceptual framework.

According to Heider, both intention, as in what a person is trying to do, and effort (Heider uses the term exertion), as in how hard a person is trying influence perceptions of actions and, consequently, evaluations of others. For Heider, intention is the central factor in personal causality, meaning that it is the intention of the person that brings about the action. Therefore, it is the desired or intended end goal that directs or guides actions. Consequently, if an observer perceives that an outcome is intentional, then the observer will most likely perceive the actions that produced the outcome to be intentional also. In turn, the causality of such outcomes is usually associated more closely with the person rather than circumstances due to environmental forces.

The cognition of effort, according to Heider, also influences perceptions of others and their actions. Of particular relevance to this discussion is the idea that effort may imply the extent to which a person intends to do something. As suggested by Heider (1958), ".... exertion circumscribes the degree of motivation or intention, that is, how much a person wants something" (p. 117).

Thus, inferences regarding how much a person wants to do something may differ as a function of the amount of effort invested in accomplishing the goal. For example, suppose that two actors are trying to cause the same outcome. One actor (high effort actor) directs several attempts towards causing the outcome. In contrast, the other actor (low effort actor) stops trying after only one attempt to cause the outcome. It is conceivable that the high effort actor would be perceived as really wanting to cause the outcome due to the relatively high level of effort invested in trying to cause the outcome. In contrast, the low effort actor would be perceived as wanting to cause the outcome to a lesser extent or perhaps, not really wanting to cause the outcome at all. Therefore, perhaps the cognition of effort differentiates ".... genuine intention from the more superficial or less sincere variety" (Heider, 1958, pp. 117-118). Thus, perhaps low effort actors would be perceived to be less interested in the activity and/or the outcome when compared to high effort actors.

Therefore, it appears conceivable that the amount of effort invested to cause an outcome may influence inferences of various aspects of an action/outcome sequence. However, the preceding discussion assumes that effort plays a significant role in forming social inferences of others. Prior to investigating whether judgments and inferences can be based upon effort cues, it seems necessary to empirically demonstrate that effort is indeed a salient feature of actions. For this reason, the present study set out to investigate the effect of effort upon social judgments of others within a conceptual framework [discussed below] that differs from the aforementioned relations.

A third possible relation considers the effect of effort upon judgments of others and behavior given information about the amount of effort invested in causing an outcome, in addition to, information such as the intentionality of the action/outcome or the actor's intentions. For example, suppose that two different actors (a high effort actor and a low effort actor) intend to cause the same negative outcome. The high effort actor persistently directs his actions towards the desired outcome, fails to produce the outcome, but keeps trying. In contrast, the low effort actor gives up after trying once to cause the outcome. Perhaps the high effort actor would be judged more negatively than the low effort actor since (s)he tried very hard to produce the outcome. This particular conceptual framework seeks to investigate whether effort is a salient feature of actions, per se, rather than investigate whether effort cues influence inferences of intentionality and/or the intention to accomplish a desired end goal.

The preceding discussion provides a conceptual basis upon which several questions/hypotheses can be derived and investigated empirically. However, the representation or conveyance of effort cues as manifested in the behavior of

others must be addressed in the literature as well. This is an important issue due to the variety of possible ways in which effort cues could be represented.

There are at least three different ways to represent information about effort. First, one might present information which focuses upon the amount of reiterated, identical attempts (actions) that are directed towards an end goal. In this instance, information that an actor has repeated one specific action numerous times may indicate that much effort was invested to accomplish the goal.

Second, the global measure of time spent pursuing an end goal may also represent information about effort. For instance, the observation that an actor has devoted a considerable amount of time pursuing a particular goal may indicate that much effort was invested in attempting to accomplish the goal.

Finally, the process of equifinality also represents information about effort (Heider, 1958). The term equifinality refers to the execution of various means to accomplish an invariable end goal. As stated by Heider (1958), ".... the different coordinated means actions all converge on an identical end" (p. 114). Thus, when one method fails to accomplish the desired goal, an alternative method is usually selected and executed with the intention of increasing the probability of producing the outcome. The process of equifinality is terminated when the end goal is met. Therefore, the observation that an actor has resorted to alternative means to accomplish a goal may indicate that much effort was invested in accomplishing the goal. Each of the above representations may convey information about the efforts of others as manifested in behavior likely to produce a desired outcome. However, perhaps the process of equifinality more clearly conveys such information since it is common practice for people to try alternative methods to accomplish a goal when necessary. Rather than repeat one particular action numerous times, it is usually the case that more innovative actions/methods are selected and executed when one truly intends to produce an outcome.

Statement of the Problems

It is important that children evidence an understanding of intentionality in their social judgments of others however, it is also important that children consider the efforts of others when cognizing the social environment. The role of effort (e.g., how many times a person tries to accomplish an end goal) in children's social judgments of others has not been investigated empirically.

One purpose of the present study was to manipulate information about effort cues in a more direct manner. For this reason, the stimulus stories manipulated information about effort in a manner similar to the process of equifinality. In addition, these stories described an outcome that almost happens to another child (i.e., almost causing physical injury) as opposed to a negative

outcome (e.g., causing physical harm). A negative outcome that nearly (but not actually) occurs was depicted in efforts to highlight the behavior of the actor over the outcome.

Hypotheses

The primary purpose of this study was to test the hypotheses that: (1) effort cues and intentionality cues will influence children's judgments of disposition and morality; (2) with increasing age, children will evidence greater use of intentionality cues (and perhaps effort) when making their judgments of disposition and morality; and (3) effort cues will influence judgments of morality and disposition for intentional actors only.

More specifically, since young children (preschoolers) tend not to use intentionality cues when making moral judgments of others, it was expected that only the grade school children would distinguish intended acts from unintended acts when judging the actor's morality. Thus, the moral judgments of school-aged children were expected to differ significantly as a function of intentionality.

Based upon findings of recent studies (e.g., Bennett, 1985; Rotenberg, 1980), it was expected that, for school-aged children, the attribution of intentionality would produce inferences of dispositional characteristics for the intentional actor. More specifically, a significant number of children at all ages were expected to make the accurate attribution judgment but, preschool children were not expected to make cross-situational predictions based upon the intentional nature of the actor's behavior.

Effort was also expected to influence grade school children's moral judgments of the actor. Specifically, moral judgments were expected to differ significantly as a function of the amount of effort invested while trying to cause the outcome. This pattern of responses was expected in the intentional conditions only. In accidental conditions, effort was not expected to result in moral judgments that differed significantly. No predictions were offered regarding preschool children's pattern of responses. Although the intentional versus accidental distinction in moral judgments is not made until later in childhood, perhaps information about effort will influence preschool children's moral judgments. Thus, perhaps effort cues will be more salient for young children than intentionality cues. On the other hand, information about the actor's level of effort while attempting to cause an outcome might not significantly influence young children's moral judgments if these children find it difficult to process the given stimuli.

Finally, it was expected that, with increasing age, children's dispositional inferences will be influenced by effort cues. Again, perhaps the attribution judgments of children at all ages will conform to expectation while

the dispositional judgments of only school-aged children will be based upon effort cues. High effort actors should be expected to display similar behavior across situations. In contrast, perhaps less certain expectations of consistent behavior would be associated more with low effort actors. Again, this pattern of responses was expected in the intentional conditions only. In accidental conditions, responses should not reflect expectations of cross-situational behavior, irrespective of differential effort. No sex differences were expected to reach statistical significance.

METHOD

Subjects

The subjects in this study were 27 preschoolers (17 boys and 10 girls), 49 second graders (22 boys and 27 girls), and 23 fifth graders (10 boys and 13 girls). The mean ages of the subjects were 4 years, 6 months; 7 years, 4 months; and 10 years, 7 months, respectively. The subjects were predominately Caucasian from middle-income families.

Stimulus Materials

Judgment Stories. Two levels of Intentionality (Accidental and Intentional) and Effort (Low and High) were factorially combined to produce the following set of four Judgment Stories: (1) Accidental-Low Effort (ALE); (2) Accidental-High Effort (AHE); (3) Intentional-Low Effort (ILE); and (4) Intentional-High Effort (IHE). These stories described the behavior of 4 different child actors and the same negative outcome event. Specifically, the stories described (1) an actor who tries only 1 time to cause a positive outcome, but in so doing almost causes physical harm (ALE); (2) an actor who tries 3 times to cause a positive outcome, but in so doing almost causes physical harm (AHE); (3) an actor who tries only 1 time to cause a negative outcome and nearly succeeds (ILE); and (4) an actor who tries 3 times to cause a negative outcome and nearly succeeds (IHE).

Prediction Situation Story. A Prediction Situation Story was constructed which described a situation where the Actor in the Judgment Story could behave in a mean manner (e.g., take a child's bicycle). Specifically, while walking home from school, the Actor sees a child standing beside a bicycle. To predict the Actor's behavior, the subjects were asked whether or not the actor would take the bicycle. All stories were accompanied by black and white line drawings to depict the content of each story.

Rating Scales. Two 5-point rating scales (Mean Rating Scale and Naughty Rating Scale) were constructed for use when judging the "meanness" of the Actor and the "naughtiness" of the Actor's behavior. The Mean Rating Scale depicted faces representing "very very" mean actors (largest, frowning face) to "not at

all" mean actors (smallest, neutral face). The Naughty Rating Scale depicted various amounts of candy representing "very very" naughty behavior (actor is given no candy) to "not at all" naughty behavior (actor is given the most candy). Both naughtiness and meanness ratings were assigned values of 1 for "not at all" to 5 for "very very". To assess predictions of behavior, subjects responded to a verbal 3-point rating scale. Subjects could answer "yes" (did expect that the Actor would take the bicycle) or "maybe" (expect that perhaps the Actor would take the bicycle) or "no" (did not expect that the Actor would take the bicycle). These judgments were assigned values of 1 for "no", 2 for "maybe", and 3 for "yes".

Procedure

The subjects were interviewed at their school/day care center. During a training session, subjects were taught to use the Mean Rating Scale first and then the Naughty Rating Scale. They were asked to listen carefully to each story and to look at the pictures because they would be asked to tell the experimenter what had happened in each story. Subjects were reminded that there were no right or wrong answers to the questions and asked to just tell the experimenter what they think about the children in the stories.

The testing session began with the presentation of the first Judgment Story. This story was read aloud by the experimenter, placing the illustrations in front of the subject while reading. Afterwards, critical recall of the story content was assessed. After satisfactory recall was demonstrated, subjects judged the morality of the Actor's behavior by pointing to an amount of candy on the Naughty Rating Scale.

Next, subjects predicted whether the Actor in the Judgment Story would behave in a mean manner in a different setting. The subjects were told that the experimenter had a different story to tell them about the Actor (from the Judgment Story). The Prediction Situation Story was read aloud and subjects simply answered "yes" (did expect that the Actor will take the bicycle), "maybe" (expect that perhaps the Actor will take the bicycle), or "no" (did not expect that the Actor will take the bicycle).

Finally, subjects judged the disposition of the Actor by pointing to a face on the Mean Rating Scale. This procedure was repeated for each Judgment Story. Subjects were told that the next story (Judgment Story) is about two different children.

RESULTS

Preliminary Analyses

Preliminary analyses of the data indicated no differences between boys and girls on any dependent variable. For this reason, sex was omitted as a variable in the subsequent analyses.

Moral and Dispositional Judgments

Children's naughtiness ratings and meanness ratings were subjected to a 3(Age) X 2(Intentionality) X 2(Effort) multivariate analysis of variance (MANOVA) with the last two factors as within-subjects variables. Univariate analyses are reported only when the corresponding multivariate analysis was significant. Table 1 presents both means and standard deviations of children's moral and dispositional judgments as a function of age, intentionality, and effort.

Insert Table 1 about here

The multivariate main effect for Age was due to preschoolers' ratings being more negative than those of older children. This effect fell short of statistical significance for Naughty ratings but, was highly significant for Mean ratings, $F(2,96)=8.58$, $p<.0004$, $MSe=1.34$. Yet, the main effect of Age accounted for less than one-tenth of all the variance in the data for dependent measure Mean, estimated $w^2=.02$. Tukey-Kramer a posteriori pair-wise comparisons ($p<.05$) revealed that preschool children's meanness rating ($M=2.91$) was significantly more negative than second and fifth grade children's meanness ratings ($Ms= 2.36$ and 2.37). As expected, univariate analyses yielded a highly significant main effect of Intentionality for dependent measures Naughty, $F(1,96)=529.32$, $p<.0001$, $MSe=0.99$ and Mean, $F(1,96)=401.29$, $p<.0001$, $MSe=1.08$. Intentional actors were perceived to be naughtier ($M=3.95$) and meaner ($M= 3.62$) than were accidental actors ($Ms= 1.45$ and 1.40). The main effect of Intentionality accounted for over one-half of all the variance in the data for dependent measure Naughty, estimated $w^2= .56$ and almost one-half of the variance in the data for dependent measure Mean, estimated $w^2= .47$. Also expected was the significant main effect of Effort for dependent measures Naughty, $F(1,96)=66.82$, $p<.0001$, $MSe=0.54$ and Mean, $F(1,96)=81.62$, $p<.0001$, $MSe=0.48$. High effort actors were perceived to be naughtier ($M= 3.03$) and meaner ($M= 2.85$) than were low effort actors ($Ms= 2.37$ and 2.18).The main effect of Effort accounted for considerably less of the variance in the data for dependent measures Naughty and Mean, estimated $w^2= .04$ for each measure.

These main effects, and the significant two-way interactions must be interpreted in the context of the Age X Intentionality X Effort interaction for dependent measures Naughty, $F(2,96)=4.03$, $p<.02$, $MSe=0.60$ and Mean, $F(2,96)=5.24$, $p<.006$, $MSe=0.85$. Interestingly, the simple effects analyses indicated that the Intentionality X Effort interaction reached statistical significance for elementary school children only. For each age level, Tukey's HSD procedure was used to test all pair-wise comparisons between means ($p<.05$). For elementary school children, all tests of pair-wise comparisons

between means were significant with the following exceptions: Naughtiness and meanness judgments of accidental actors (ALE versus AHE) were virtually identical, irrespective of differential effort. For preschool children, all tests of pair-wise comparisons were significant with the following exceptions: Naughtiness and meanness judgments of both accidental (ALE versus AHE) and intentional (ILE versus IHE) actors did not differ significantly as a function of effort. Thus, a significant number of children at each age level judged accidental actors similarly, irrespective of effort. However, for preschool children, this pattern of responses emerged for intentional actors also. Thus, preschool children evidenced little use of effort cues when judging actors, irrespective of the intentional nature of the outcome.

Predictions of Future Mean Behavior

The decision was made to consider children's predictions separately from their judgments of morality and disposition. Children's predictions were subjected to a 3(Age) X 2(Intentionality) X 2(Effort) ANOVA with the last two factors as within-subjects variables. Table 2 presents means and standard deviations of children's predictions as a function of age, intentionality, and effort.

Insert Table 2 about here

As expected, this analysis yielded significant main effects of Intentionality, $\underline{F}(1,96) = 80.24$, $\underline{p}<.0001$, MSe= 0.44 and Effort, $\underline{F}(1,96) = 14.21$, $\underline{p}<.0003$, MSe=0.34. The main effect of Intentionality accounted for 15% of the variance (estimated $\underline{w}^2 = .15$), and the main effect of Effort accounted for even less of the variance in the data, estimated $\underline{w}^2 = .02$. As expected, children were more likely to predict mean behavior for intentional actors ($\underline{M} = 2.01$) than for accidental actors ($\underline{M} = 1.36$). Also, children were more likely to predict mean behavior for high effort actors ($\underline{M}=1.81$) than for low effort actors ($\underline{M}=1.55$).

However, the main effect of Intentionality was qualified by the significant Age X Intentionality interaction, $\underline{F}(2,96)=11.18$, $\underline{p}<.0001$, and a significant Intentionality X Effort interaction, $\underline{F}(1,96) = 25.05$, $\underline{p}<.0001$, MSe= 0.25. The simple effects analyses of the Age X Intentionality interaction revealed that, as expected, intentionality influenced only elementary school children's predictions such that higher expectations of mean behavior were associated more with intentional actors than with accidental actors. In contrast, preschool children's predictions of future mean behavior for intentional actors ($\underline{M}=1.76$) did not differ signficantly from their predictions of mean behavior for accidental actors ($\underline{M} = 1.61$). Examination of the Intentionality X Effort interaction indicated that as expected, the predictions of future mean behavior for accidental actors did not differ significantly as a function of effort, $\underline{M}$s= 1.36 and 1.35. In contrast,

the predictions of mean behavior for intentional actors did differ significantly as a function of effort, Ms= 1.75 and 2.27.

DISCUSSION

A particular feature of this study was an investigation of whether effort (e.g., how many times a person tries to accomplish an end goal) is a salient feature of actions and the conditions under which effort cues influence children's judgments of morality and disposition. The results of this study suggest that effort is indeed a salient feature of actions upon which judgments of others may be based. As expected, children differentiated high effort actors from low effort actors when making their judgments of morality and disposition. However, preschool children's moral judgments of low effort actors were significantly more negative than fifth grade children's moral judgments of such actors. It appears that the younger children perceived the behavior of the less culpable actor to be relatively negative (naughty). It seems quite plausible that preschool children may have focused upon personal causality (Berndt & Berndt, 1975) when making their judgments and therefore, regarded only one attempt to cause an outcome to be relatively naughty simply because that attempt almost caused physical harm.

Of particular interest is the finding that effort cues influenced elementary school children's moral and dispositional judgments of intentional actors only. As expected, in the intentional conditions, the behavior of the high effort actor resulted in significantly more negative judgments than the behavior of the low effort actor. Perhaps the elementary school children simply regarded three attempts that almost caused intentional harm to be more negative than only one attempt that almost caused intentional harm. Thus, perhaps the differential number of attempts that are directed towards an intended end goal influence perceptions of others and their actions.

An alternative and more interesting possibility is that perhaps elementary school children inferred differential levels of motivation to accomplish the end goal from differential effort cues. As suggested by Heider (1958), perhaps the efforts of others influence perceptions and inferences regarding the extent to which the outcome was intended or desirable. Although both actors were trying to cause physical harm, elementary school children may have inferred that the high effort actor really wanted to cause harm since (s)he employed various means when trying to accomplish the end goal. In contrast, perhaps the low effort actor was perceived as wanting to cause harm to a lesser extent since only one attempt was made to do so. It also seems plausible that these children may have inferred that the low effort actor really did not want to cause harm

since (s)he decided to stop trying after only one attempt to do so. This explanation is speculative since this study was not designed to investigate whether differential effort cues may produce inferences of differential motivational levels to accomplich an end goal. This possibility deserves serious conceptual consideration and empirical study to explore whether such inferences may be produced as a result of effort cues.

As expected, effort cues did not influence children's moral and dispositional judgments of accidental actors. One possibility that could account for this finding is the notion that the event that almost occurred (harm) was a by-product of the actors' intended end goal. If elementary school children simply considered the number of times that an actor attempted to produce a desirable outcome when making their judgments of morality and disposition, then perhaps these children perceived the differential number of attempts (one versus three) to be irrelevant when judging accidental actors since causing harm was not the intended end goal.

An alternative possibility relates to the notion that the concept of motive is usually considered in cases of intentional actions/outcomes rather than in cases of accidental actions/outcomes (Keasey, 1978). If effort cues do indeed produce inferences regarding an actor's level of motivation to produce an outcome, then it seems likely that such inferences would be produced only in cases where intended outcomes occurred (almost occurred). In contrast, it seems unlikely that effort cues would produce inferences of differential levels of motivation for actors in cases of unintended outcomes. Perhaps the elementary school children did infer differential levels of motivation to cause harm for intentional actors since causing harm was the intended end goal. In cases where accidental harm almost occurred, perhaps these children recognized the irrelevance of considering and comparing differential levels of motivation to cause harm since causing harm was not the intended end goal. Therefore, it seems likely that observers would not infer differential levels of motivation for accidental actors who produce the same outcome since the observable outcome differs from the intended end goal.

Due to the intentionality manipulation in this study, it is quite possible that elementary school children's usage of effort cues when judging intentional versus accidental actors may have been influenced by information regarding the intentions (motives) of the actors. The behavior of intentional actors was motivated by a desire to cause physical harm; these actors were trying to cause harm and nearly succeeded. Perhaps the elementary school children regarded effort cues to be particularly relevant when judging intentional actors since these actors were trying to cause harm. If this is so, then it seems plausible that the number of differential attempts to cause harm would result in

differentiated moral and dispositional judgments since causing harm was the intention of the actor.

In contrast, the behavior of accidental actors was motivated by a desire to cause a positive outcome. These actors were not trying to cause physical harm. Thus, the efforts of accidental actors were in the direction of a positive outcome. Consequently, it appears that there was an absence of effort in the direction of causing physical harm. In this situation, perhaps elementary school children found it irrelevant to consider and compare the differential efforts of accidental actors since these actors were not trying to cause harm. In turn, these children may have recognized that there was an absence of effort to cause harm, in which case, effort would be considered to be irrelevant in judgments of morality and disposition since the effort was in the direction of a positive goal.

No definite predictions were made regarding preschool children's usage of effort cues in judgments of morality and disposition. The findings of this study suggest that these children evidenced little use of effort cues when making such judgments. Preschool children's judgments of accidental actors did conform to expectation since their judgments did not differ as a function of effort cues. However, this pattern of responses emerged for the intentional actors as well. Therefore, the extent to which the actors tried to accomplish an end goal did not influence the judgments of the youngest children in this study. It appears that preschool children's judgments may have reflected a tendency to focus upon personal causality. For example, preschool children consistently rated the accidental and low effort actors to be relatively naughty and mean. If these children did indeed focus upon personal causality, then perhaps the extent to which the actor tried to accomplish the end goal was considered to be irrelevant since the actor almost caused a negative outcome.

It is likely that preschool children experienced some degree of "cognitive overload". This is quite possible since the stimulus stories in this study varied intentionality, effort, and motive information. Perhaps these children found it difficult to process the information due to the multiple behavioral cues given within each story.

As expected, effort cues did influence elementary school children's predictions of mean behavior such that these children were more likely to predict cross-situational behavior for high effort actors than for low effort actors. However, this pattern of responses emerged for the intentional actors only. Although both actors were trying to cause harm, perhaps effort influenced children's expectations of similar behavior due to the differential number of attempts that were made to accomplish the end goal. It seems plausible that an observer might regard several instances of similar behavior to be an indication of a person's disposition. In contrast, perhaps an observer would be more

reluctant to infer a disposition on the basis of only one instance of behavior. Therefore, perhaps children perceived the multiple attempts to cause harm to be a definite manifestation of a mean disposition and therefore, expected the high effort actor to display mean behavior in the future. In contrast, perhaps children were less certain that the low effort actor would display mean behavior since the actor decided to stop trying to cause harm after only one attempt to do so.

Overall, these findings suggest that the cognition of effort deserves further conceptual consideration and empirical investigation. Future research in this area is necessary to clarify issues regarding the conditions (accidental versus intentional) under which effort cues influence social judgments of others. Also, future research should explore whether representations of effort cues influence inferences and perceptions regarding the extent to which a person has tried to accomplish an end goal. Perhaps the process of equifinality would tend to imply that a person has tried very hard to produce an outcome since various means were executed to do so. In contrast, repeating an action that appears to be ineffective in producing the outcome may imply that the person is not trying very much to increase the probability of producing the outcome. In turn, it is likely that different representations of effort cues may influence inferences regarding the extent to which the person wanted to produce an outcome such that perceptions of relatively high effort may imply that the person really wanted to accomplish the goal.

To conclude, these findings suggest that the cognition of effort in children's social judgments of others deserves future empirical exploration and conceptual consideration. As social perceivers, it is important that children consider the efforts of others when cognizing the social environment. This study suggests that such cues are influential factors by which social perceivers may base their judgments of others.

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Table 1

Mean Moral and Dispositional Ratings at Each Age Level as a Function of Intentionality and Effort

	Age		
	Preschool	Second	Fifth
Intentionality			
Accidental			
low effort (ALE)			
naughty	2.00	1.20	1.17
	(1.49)	(0.45)	(0.49)
mean	1.70	1.16	1.09
	(1.20)	(0.42)	(0.29)
high effort (AHE)			
naughty	2.04	1.33	1.22
	(1.31)	(0.62)	(0.52)
mean	2.30	1.26	1.13
	(1.75)	(0.49)	(0.46)
Intentional			
low effort (ILE)			
naughty	3.52	3.35	3.09
	(1.25)	(1.09)	(0.85)
mean	3.55	2.86	2.91
	(1.45)	(0.98)	(0.79)
high effort (IHE)			
naughty	4.04	4.73	4.83
	(1.56)	(0.60)	(0.39)
mean	4.07	4.16	4.35
	(1.38)	(0.92)	(0.77)

Note: Standard deviations are in parentheses.

Table 2

Means and Standard Deviations of Children's Prediction Ratings as a Function of Age, Intentionality, and Effort

	Age		
	Preschool	Second	Fifth
Intentionality			
Accidental			
low effort (ALE)	1.62	1.26	1.26
	(0.92)	(0.53)	(0.54)
high effort (AHE)	1.59	1.32	1.13
	(0.88)	(0.59)	(0.34)
Intentional			
low effort (ILE)	1.59	1.77	1.86
	(0.88)	(0.55)	(0.54)
high effort (IHE)	1.92	2.38	2.43
	(0.95)	(0.63)	(0.72)

Note: Standard deviations are in parentheses.